

## Economic Valuation of Natural Resources of Oil Palm Plantations in Mandailing Natal

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### Abstract

This research aims to find out the economic valuation, social and environmental impacts of oil palm plantations in Mandailing Natal, North Sumatra. This research uses secondary methods by exploring data from various sources including literature, legal documents and case studies. The research results show significant economic growth in Mandailing Natal, especially in the information and communication sector as well as the agriculture, forestry and fisheries sectors. Palm oil production experiences significant fluctuations, with social impacts including employment and environmental problems. This research provides valuable guidance for local governments, palm oil plantation companies, and stakeholders in making sustainable and balanced decisions between economic development and environmental conservation in Mandailing Natal.

**Keywords:** Economic Valuation, Social Impact, and Environment of Palm Oil Plantations.

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## INTRODUCTION

Indonesia, as one of the world's largest palm oil producers, has made oil palm plantations a valuable economic asset. Mandailing Natal, which is blessed with a climate and land that supports the growth of oil palm plants, is an important center of the palm oil industry in North Sumatra.

The three business sectors that have an important role in Mandailing Natal's GRDP in 2020 are: agriculture, forestry and fisheries sector by 43.55 percent; wholesale and retail trade; repair of cars and motorbikes by 14.47 percent and the construction sector by 13.00 percent. Based on this data, the sector that makes the largest contribution to Mandailing Natal's GRDP is the agriculture, plantation and fisheries sector. One of the drivers of economic growth in Mandailing Natal Regency is plantations. The most dominant plantation crop in this region is oil palm with an area of 72,595.48 ha and production of 655,000 tons in 2013. Rubber plantations cover 72,169.28 ha with production of 61,865.33 tons and cocoa 5,242.06 ha with production of 4,411.96 tons.

In addition to these plantation commodities, Mandailing Natal Regency also has the potential to develop coffee, cinnamon, coconut, candlenut, oil palm, and clove crops.



The economic impact caused by oil palm plantations, such as the creation of jobs, increasing community income, and contributing to regional income, makes this sector an integral element in the economic development of this region.

However, in addition to providing substantial economic benefits, oil palm plantation activities also pose a number of problems, including environmental, social and sustainability impacts. Therefore, an economic valuation of the natural resources of oil palm plantations in Mandailing Natal is important to better understand the benefits and challenges associated with this sector.

Currently, development projects in the oil palm plantation industry continue to increase with a focus on increasing exports to support national economic growth. However, the impacts of these projects are often overlooked. In addition, the impact of oil palm land clearing is also in the form of forest destruction and forest fires that harm the community and the environment. The 2015 forest fires, for example, caused huge losses in terms of both public health and economic losses.

This study aims to conduct an economic valuation of the natural resources of oil palm plantations in Mandailing Natal with a focus on measuring the economic contribution of the oil palm plantation sector to regional income in Mandailing Natal, analyzing the impact of job creation generated by oil palm plantations. oil palm plantations. oil palm industry in improving the welfare of local communities, as well as evaluating environmental impacts and efforts to sustain oil palm plantation activities in this region. The results of this study are expected to provide a deeper understanding of the economic contributions and problems related to the oil palm plantation sector in Mandailing Natal. The information generated from this research will be a valuable guide for local governments, oil palm plantation companies and other stakeholders in making decisions that are sustainable and balanced between economic development and environmental preservation. Thus, this research is expected to make a positive contribution to the sustainable development of the oil palm plantation sector in Mandailing Natal.

## **RESEARCH METHOD**

The location of this research is located in an oil palm plantation area, namely in Mandailing Natal Regency, North Sumatra Province. The selection of this area as the focal point of the research aims to dig deeper into several relevant aspects.

Secondary research methods are applied by utilizing existing data, such as research reports and similar documents. Topic identification, research sources, literature studies, observations, documents, and surveys are some of the commonly used methods. Secondary research helps researchers identify knowledge gaps as a basis for further investigation, with data sources from public libraries, websites, survey results, and so on.

The approach used in this research is a descriptive approach, which presents knowledge and information based on facts in the field. Descriptive research aims to describe scientific events or phenomena.

Research materials in the legal context are Normative Juridical, using primary, secondary, and tertiary legal materials. Secondary legal materials include books, legal journals, and related legal cases. Tertiary legal materials such as general dictionaries, language dictionaries, newspapers, articles and the internet. All of these provide a solid and comprehensive research foundation to understand

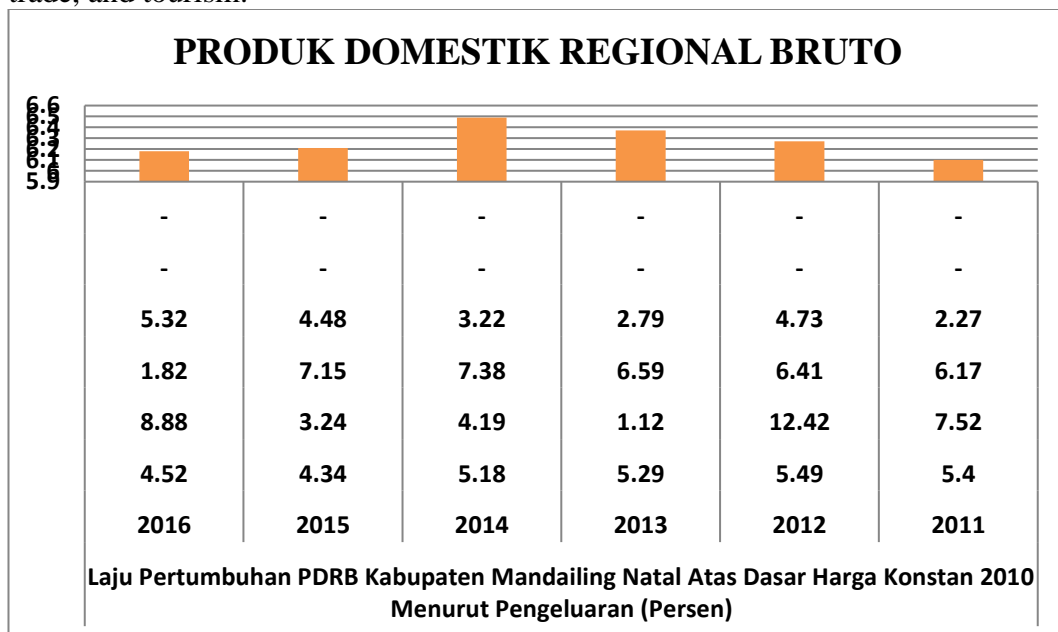
and dig deeper into the context of oil palm plantations in the Mandailing Natal region, North Sumatra.

## RESULTS AND DISCUSSION

### Economic Growth of Mandailing Natal Regency

Mandailing Natal Regency is one of the palm oil producing regions in Indonesia. In 2021, the agriculture, forestry and fisheries sector made the largest contribution to the regional Gross Regional Domestic Product (GRDP), which amounted to 44.88 percent.

Palm oil is a plantation commodity that plays an important role in the Indonesian economy. In 2021, the plantation subsector contributed 3.94 percent to total national GDP and 29.67 percent to the agriculture, forestry and fisheries sector. The productivity of oil palm farmers in Mandailing Natal Regency is influenced by business capital and land area. The results showed that business capital and land area had a positive and significant effect on the productivity of oil palm farmers. The economic potential of Mandailing Natal Regency can still be developed by utilizing its natural and human resources. Some sectors that can be regional excellence include agriculture, plantations, livestock, fisheries, processing industry, trade, and tourism.



Based on this graph, the Mandailing Natal economy in 2021 grew by 3.20 percent. Experienced an increase compared to 2020 which experienced a contraction of 0.94 percent.

Based on the production approach, the highest growth was achieved by the information and communication business field at 5.84 percent, followed by the water supply, waste management, waste and recycling business field at 5.46 percent, and the agriculture, forestry and fisheries business field at 5.46 percent. 5.46 percent. 4.47 percent.

The three business fields that have a dominant role in the GRDP of Mandailing Natal Regency by business field in 2021 are: agriculture, forestry, and

fisheries business fields by 44.88 percent; wholesale and retail trade, as well as repair of cars and motorbikes by 14.15 percent; and construction business fields by 12.71 percent.

When viewed from the expenditure approach, the growth of the government expenditure component amounted to 3.64 percent, followed by the gross fixed capital formation component of 3.42 percent, and household consumption of 2.58 percent. Meanwhile, the LNPRT consumption component contracted by 0.20 percent. Based on the expenditure side, the household consumption expenditure component (PKRT) made the largest contribution of 63.66 percent, followed by the gross fixed capital formation component of 21.73 percent; and the government consumption component of 15.23 percent. Nominally, the GRDP of Mandailing Natal Regency in 2021 at current prices reached IDR 14,880.42 billion and the GRDP of Mandailing Natal Regency in 2021 at constant prices reached IDR 9,585.89 billion.

### Oil Palm Production in Mandailing Natal

Table1. Total Oil Palm production and Land Area of producing oil palm plantations

Tahun	Luas	Jumlah
	Lahan (Hektar)	Prduksi (Ton)
2011	203	203
	597.30	597.30
2012	218	218
	642.23	642.23
2013	231	231
	565.17	565.17
2014	16	16
	050.32	050.32
2015	250	250
	378.40	378.40
2016	258	258
	083.50	083.50

Based on palm oil production data in Mandailing Natal Regency from 2011 to 2016, several conclusions can be drawn:

There were fluctuations in palm oil production during this period. Production increased dramatically from 2011 to 2012, then experienced a sharp decline in 2014, before increasing again in 2015 and 2016. There was a significant increase in palm oil production between 2011 and 2012, with a more than 14-fold

increase. This may be due to the investment and expansion of oil palm plantations in the region. Palm oil production experienced a sharp decline in 2014, dropping by more than 38% compared to the previous year. Factors such as bad weather, plant diseases or policy changes may have influenced this decline, but after 2014, palm oil production increased again and remained relatively stable in 2015 and 2016. This may reflect a recovery from the previous decline.

### **The Social Impact of Oil Palm Plantations on the People of Mandailing Natal**

Oil palm plantations in Mandailing Natal have extensive social impacts on local communities. Here are some of the social impacts of oil palm plantations on Mandailing Natal communities:

1. Labor Absorption

Oil palm plantations provide employment opportunities for local communities. This can increase the income and welfare of the local community. However, the absorption of labor in the oil palm plantation sector can cause problems, such as low wages and unsafe working conditions.

2. Impacts on Traditional Livelihoods

Oil palm plantations can affect the traditional livelihoods of local communities, such as agriculture and fishing. This can lead to a decrease in local production and income. However, oil palm plantations can also provide alternative livelihoods for local communities who previously relied on traditional livelihoods.

3. Other Social Aspects

Oil palm plantations can have both positive and negative impacts on other social aspects, such as health, education, and infrastructure. The development of oil palm plantations can improve access to health and education facilities, and improve the quality of infrastructure. However, the development of oil palm plantations can also cause environmental damage and social conflicts between companies and local communities.

In implementing oil palm plantation policies, the government must consider the social impacts that may occur on local communities. The government must ensure that oil palm plantations have a positive impact on local communities and the environment. In addition, the government must also ensure that oil palm plantation companies comply with applicable regulations and standards to protect the rights of local communities and the environment.

### **Training Some negative impacts of Oil Palm Plantations from various sources**

1. Peatland damage

Peatlands are carbon-rich and play an important role in climate change mitigation. However, peatlands are often converted into oil palm plantations by burning or digging. This causes the release of large amounts of greenhouse gases and threatens the existence of flora and fauna that live on peatlands.

2. Land conflicts

The expansion of oil palm plantations often ignores the land rights of communities, especially indigenous and transmigrant communities. There are many cases of oil palm companies claiming community-owned land without

consultation or fair compensation. This has led to protracted land conflicts that are detrimental to communities.

3. Water pollution

Oil palm plantations require a lot of water for irrigation and processing fresh fruit bunches into palm oil. But the water used often contains chemical and organic waste that is harmful to human health and the environment. This waste is often discharged into rivers or lakes without adequate treatment, polluting the clean water sources of local communities.

Therefore, efforts are needed to overcome the negative impacts of oil palm plantations in Mandailing Natal, such as:

1. Implement environmentally friendly sustainable agriculture principles, such as not clearing new land by burning, maintaining ecosystem balance, and reducing the use of pesticides and chemical fertilizers.
2. Respect community land rights and provide legal protection for those affected by oil palm plantations, such as providing adequate compensation, resolving land disputes amicably, and empowering communities to manage their land independently.
3. Improve water and waste management systems in oil palm plantations, such as using water-saving technologies, building waste treatment plants, and monitoring water quality regularly.

### **Evaluation of Applicable Policies and Regulations Related to Oil Palm Plantations**

Oil palm plantations have significant negative impacts on local communities and the environment. Therefore, there is a need to improve or change palm oil policies and regulations to increase economic, social and environmental benefits. Some improvements or changes that can be made include:

1. Stricter Environmental Standards

The government can implement stricter environmental standards for oil palm plantations. This helps reduce the negative impacts of oil palm plantations on the environment and the health of local communities.

2. Improving the Welfare of Local Communities

Governments can improve the welfare of local communities by providing better access to health facilities, education and infrastructure. This can help reduce the negative impacts of oil palm plantations on the health and education of local communities.

3. Increasing Local Community Participation

The government can increase the participation of local communities in decision-making related to oil palm plantations. This can help reduce social conflicts between companies and local communities.

4. Improved Monitoring and Law Enforcement

To improve supervision and law enforcement, the government can tighten supervision of oil palm plantation companies that violate established regulations and standards. This is to reduce the risks posed to the environment and surrounding communities.

To improve supervision and law enforcement, the government can tighten supervision of oil palm plantation companies that violate established

regulations and standards. This is to reduce the risks that can be posed to the environment and surrounding communities.

In implementing palm oil policies and regulations, the Mandailing Natal government must consider the social and environmental impacts that may arise on the community. The government must ensure that oil palm plantations have a positive impact on local communities and the environment. In addition, the government must also ensure that oil palm plantation companies comply with applicable regulations and standards to protect the rights of local communities and the environment.

## **CONCLUSION**

The results of this study show several important aspects related to the economy, palm oil production and social impacts in Mandailing Natal District. The region's economic growth in 2021 increased mainly in the information and communication sector, as well as the agriculture, forestry and fisheries sectors. This reflects the potential for economic growth that can be developed in various economic sectors.

Palm oil production as an important commodity in the region has experienced significant fluctuations in recent years. Factors such as investment, weather, and agricultural policies may have influenced these fluctuations. However, it should be noted that palm oil production has significant social impacts, including employment, impacts on traditional livelihoods, and issues related to environmental management.

The social impacts of oil palm plantations in Mandailing Natal cover several aspects, both positive and negative. These plantations not only provide employment for local communities, but also cause land conflicts and environmental problems. Therefore, serious efforts need to be made to overcome the negative impacts of oil palm plantations, including by implementing stricter environmental standards, improving the welfare of local communities, increasing local community participation in decision-making, and improving supervision and law enforcement.

Mandailing Natal Regency has significant potential for economic growth, especially in the agriculture and plantation sectors. However, special attention needs to be paid to the social and environmental impacts that may arise from this economic growth. Local government and stakeholders need to work together to create a balance between sustainable economic growth and protecting local communities and the environment.

## **BIBLIOGRAPHY**

- Abidin, Z. (2020). Analisis Dampak Keberadaan Perkebunan Kelapa Sawit Di Kecamatan Sesayap Hilir Kabupaten Tana Tidung (Studi Kasus Pt. Teknik Utama Mandiri). Program Studi Agribisnis Fakultas Pertanian .... <https://repository.uvt.ac.id/repository/UBT07-06-2022-204444.pdf>
- Admin Website. (2021). Evaluasi dan Sanksi untuk Optimalisasi Usaha Perkebunan Kelapa Sawit. KANTOR PERKEBUNAN. Provinsi Kalimantan Timur. <https://disbun.kaltimprov.go.id/artikel/evaluasi-dan-sanksi-guna-optimalisasi-usaha-perkebunan-kelapa-sawit>

- Dampak Sosial Ekonomi Pengusahaan Kelapa Sawit Terhadap Kesejahteraan Petani. (n.d.). BDPDKS. <https://www.bdpd.or.id/Dampak-Sosial-Ekonomi-Pengusahaan-Kelapa-Sawit-Terhadap-Kesejahteraan-Petani>
- Ekonomi, J., Unimal, P., Syafira, S., Pembangunan, P. E., & Malikussaleh, U. (n.d.). Pengaruh Ba ' i Sawit Terhadap Tingkat Kesejahteraan Petani Kecamatan Kuta Makmur Kabupaten Aceh Utara. 5979, 38–47.
- Hasanah, U. (2021). Kehidupan Sosial Ekonomi Petani Kelapa Sawit Setelah Turunnya Harga. *Jom Fisip*, 7(1), 1–14.
- Indira, G. (2018). Analisis Potensi Ekonomi Kabupaten Pangkep.
- KOMISI PENGAWAS PERSAINGAN USAHA. (n.d.). KOMISI PENGAWAS PERSAINGAN USAHA. KPPU. <https://kppu.go.id/kajian-kebijakan/>
- PERTUMBUHAN EKONOMI MANDAILING NATAL TAHUN 2021. (2021). BADAN PUSAT STATISTIK MANDAILING NATAL. <https://mandailingnatakab.bps.go.id/pressrelease/2022/04/20/273/pertumbuhan-ekonomi-mandailing-natal-tahun-2021.htm>
- POTENSI DAERAH. (n.d.). INFO MADINA. <https://info.madina.go.id/potensi-daerah-mandailing-natal-2/>
- SIRADJUDDIN, I. (2015). Dampak Perkebunan Kelapa Sawit Terhadap Perekonomian Daerah di Kabupaten Rokan Hulu. *Jurnal Agroteknologi*, 5(2), 7. <https://doi.org/10.24014/ja.v5i2.1349>
- SISKA. (n.d.). Kebijakan dan Peraturan Pemerintah dalam Implementasi Sistem Integrasi Sapi Kelapa Sawit (SISKA) mendukung Perkebunan Sawit Berkelanjutan. Siskaforum. <https://siskaforum.org/kebijakan-dan-peraturan-pemerintah-dalam-implementasi-sistem-integrasi-sapi-kelapa-sawit-siska-mendukung-perkebunan-sawit-berkelanjutan/>
- STATISTIK KELAPA SAWIT DI INDONESIA 2021. (2021). BADAN PUSAT STATISTIK. <https://www.bps.go.id/publication/2022/11/30/254ee6bd32104c00437a4a61/statistik-kelapa-sawit-indonesia-2021.html>
- Zubir, Z. (2017). “Penguasa, Pengusaha, dan Petani: Kapitalisme Perkebunan Sawit, Distorsi Sosial Ekonomi, dan Perlawanan Petani di Indragiri Hulu, Riau, 1978—2010.” *Masyarakat Indonesia*, 43(1), 125—141. <http://jmi.ipisk.lipi.go.id/index.php/jmiipisk/article/viewFile/719/523>